

CLAIMS

1. A radio reception apparatus that receives signals each having a first signal comprising only a no sign-inverted +A symbol sent through a propagation path with a first propagation coefficient and a second signal comprising a no sign-inverted +A symbol and a sign-inverted -A symbol sent through a propagation path with a second propagation coefficient, comprising:

an extractor that extracts a signal expressed with the first propagation coefficient and a signal expressed with the second propagation coefficient from the reception signals; and

an adder that performs in-phase additions of the extracted signals.

2. The radio reception apparatus according to claim 1, wherein the extractor comprising:

a sorter that sorts the reception signals into two groups corresponding to a symbol pattern of the second signal so that a repetition cycle of signals comprising +A symbol of the first signal and +A symbol of the second signal is equal to a repetition cycle of signals comprising +A symbol of the first signal and -A symbol of the second signal; and

a separator that separates the reception signal into the signals each expressed with the first propagation coefficient and the signals each expressed with the second propagation coefficient by calculating a sum of and

difference between the signal sorted as one group and the signal sorted as the other.

3. The radio reception apparatus according to claim 1,
5 further comprising:

a storage that temporarily stores the reception signals; and

a despreader that performs despreading processing on the same reception signal stored in the storage using
10 spreading codes corresponding to a plurality of communication partners.

4. A radio reception apparatus that receives signals each having a first signal comprising only a no sign-inverted
15 +A symbol sent through a propagation path with a first propagation coefficient and a second signal comprising a no sign-inverted +A symbol and a sign-inverted -A symbol sent through a propagation path with a second propagation coefficient, comprising:

20 a separator that separates the reception signals into a signal comprising +A symbol of the first signal and +A symbol of the second signal, and a signal comprising +A symbol of the first signal and -A symbol of the second signal; and

25 an adder that performs in-phase additions of the respective separated signals.

5. The radio reception apparatus according to claim 4,

further comprising:

a storage that temporarily stores the reception signals; and

a despreader that performs despread processing
 5 on the same reception signal stored in the storage using spreading codes corresponding to a plurality of communication partners.

6. A radio reception apparatus that receives signals each
 10 having a first signal comprising only a no sign-inverted +A symbol sent through a propagation path with a first propagation coefficient and a second signal comprising a no sign-inverted +A symbol and a sign-inverted -A symbol sent through a propagation path with a second propagation
 15 coefficient, comprising:

a receiver that receives a third signal comprising +A symbol of the first signal and +A symbol of the second signal and a fourth signal comprising +A symbol of the first signal and -A symbol of the second signal among
 20 the reception signals by alternating the third signals and the fourth signals, by a plurality of symbols each at predetermined intervals; and

an adder that performs in-phase additions of the third signals and in-phase additions of the fourth
 25 signals.

7. The radio reception apparatus according to claim 6, further comprising:

a storage that temporarily stores the reception signals; and

a despreader that performs despreading processing on the same reception signal stored in the storage using
5 spreading codes corresponding to a plurality of communication partners.

8. The radio reception apparatus according to claim 6,
10 wherein the adder performs no in-phase addition of symbols on the different sides of a frame boundary.

9. A communication terminal apparatus equipped with a radio reception apparatus that receives signals each having a first signal comprising only a no sign-inverted
15 +A symbol sent through a propagation path with a first propagation coefficient and a second signal comprising a no sign-inverted +A symbol and a sign-inverted -A symbol sent through a propagation path with a second propagation coefficient, said radio reception apparatus comprising:

20 an extractor that extracts a signal expressed with the first propagation coefficient and a signal expressed with the second propagation coefficient from the reception signals; and

an adder that performs in-phase additions of the
25 extracted signals.

10. A communication terminal apparatus equipped with a radio reception apparatus that receives signals each

having a first signal comprising only a no sign-inverted +A symbol sent through a propagation path with a first propagation coefficient and a second signal comprising a no sign-inverted +A symbol and a sign-inverted -A symbol sent through a propagation path with a second propagation coefficient, said radio reception apparatus comprising:

a separator that separates the reception signals into a signal comprising +A symbol of the first signal and +A symbol of the second signal, and a signal comprising +A symbol of the first signal and -A symbol of the second signal; and

an adder that performs in-phase additions of the respective separated signals.

11. A communication terminal apparatus equipped with a radio reception apparatus that receives signals each having a first signal comprising only a no sign-inverted +A symbol sent through a propagation path with a first propagation coefficient and a second signal comprising a no sign-inverted +A symbol and a sign-inverted -A symbol sent through a propagation path with a second propagation coefficient, said radio reception apparatus comprising:

a receiver that receives a third signal comprising +A symbol of the first signal and +A symbol of the second signal and a fourth signal comprising +A symbol of the first signal and -A symbol of the second signal among the reception signals by alternating the third signals and the fourth signals, by a plurality of symbols each

at predetermined intervals; and

an adder that performs in-phase additions of the third signals and in-phase additions of the fourth signals.

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12. A base station apparatus equipped with a radio reception apparatus that receives signals each having a first signal comprising only a no sign-inverted +A symbol sent through a propagation path with a first propagation coefficient and a second signal comprising a no

10 sign-inverted +A symbol and a sign-inverted -A symbol sent through a propagation path with a second propagation coefficient, said radio reception apparatus comprising:

an extractor that extracts a signal expressed with

15 the first propagation coefficient and a signal expressed with the second propagation coefficient from the reception signals; and

an adder that performs in-phase additions of the extracted signals.

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13. A base station apparatus equipped with a radio reception apparatus that receives signals each having a first signal comprising only a no sign-inverted +A symbol sent through a propagation path with a first propagation

25 coefficient and a second signal comprising a no sign-inverted +A symbol and a sign-inverted -A symbol sent through a propagation path with a second propagation coefficient, said radio reception apparatus comprising:

a separator that separates the reception signals into a signal comprising +A symbol of the first signal and +A symbol of the second signal, and a signal comprising +A symbol of the first signal and -A symbol of the second
 5 signal; and

an adder that performs in-phase additions of the respective separated signals.

14. A base station apparatus equipped with a radio
 10 reception apparatus that receives signals each having a first signal comprising only a no sign-inverted +A symbol sent through a propagation path with a first propagation coefficient and a second signal comprising a no
 15 sign-inverted +A symbol and a sign-inverted -A symbol sent through a propagation path with a second propagation coefficient, said radio reception apparatus comprising:

a receiver that receives a third signal comprising +A symbol of the first signal and +A symbol of the second signal and a fourth signal comprising +A symbol of the
 20 first signal and -A symbol of the second signal among the reception signals by alternating the third signals and the fourth signals, by a plurality of symbols each at predetermined intervals; and

an adder that performs in-phase additions of the
 25 third signals and in-phase additions of the fourth signals.

15. A radio reception method for receiving signals each

having a first signal comprising only a no sign-inverted
 +A symbol sent through a propagation path with a first
 propagation coefficient and a second signal comprising
 a no sign-inverted +A symbol and a sign-inverted -A symbol
 5 sent through a propagation path with a second propagation
 coefficient, comprising:

an extracting step of extracting a signal expressed
 with the first propagation coefficient and a signal
 expressed with the second propagation coefficient from
 10 the reception signals; and

an adding step of performing in-phase additions of
 the extracted signals.

16. A radio reception method for receiving signals each
 15 having a first signal comprising only a no sign-inverted
 +A symbol sent through a propagation path with a first
 propagation coefficient and a second signal comprising
 a no sign-inverted +A symbol and a sign-inverted -A symbol
 sent through a propagation path with a second propagation
 20 coefficient, comprising:

a separating step of separating the reception
 signals into a signal comprising +A symbol of the first
 signal and +A symbol of the second signal, and a signal
 comprising +A symbol of the first signal and -A symbol
 25 of the second signal; and

an adding step of performing in-phase additions of
 the respective separated signals.

17. A radio reception method for receiving signals each having a first signal comprising only a no sign-inverted +A symbol sent through a propagation path with a first propagation coefficient and a second signal comprising
5 a no sign-inverted +A symbol and a sign-inverted -A symbol sent through a propagation path with a second propagation coefficient, comprising:

a receiving step of receiving a third signal comprising +A symbol of the first signal and +A symbol
10 of the second signal and a fourth signal comprising +A symbol of the first signal and -A symbol of the second signal among the reception signals by alternating the third signals and the fourth signals, by a plurality of symbols each at predetermined intervals; and

15 an adding step of performing in-phase additions of the third signals and in-phase additions of the fourth signals.